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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,310	07/02/2003	Louis Robert Litwin	PU030156	4093

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EXAMINER	
EJAZ, NAHEED	

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/612,310	LITWIN ET AL.	
	Examiner	Art Unit	
	Naheed Ejaz	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

2. With respect to claim 1, Applicant argues that Sawahashi does not teach first arrangement that correlates for a primary synchronization code in the received signal to produce a first correlate signal.... (Remarks, dated: 08/02/07, page 9, paragraph 2) This is not persuasive since Sawahashi teaches first and second correlation arrangements (see figure 2, elements 17, 48 & 49) and correlation for a primary synchronization code and secondary synchronization code in the received signals are the new limitations added to the independent claims 1, 10 & 15 and are rejected Sawahashi in view of Dabak (7,039,036) (see claim 1 rejection below). Furthermore, Sawahashi also teaches logic that derives a frequency adjustment signal from the first correlated signal and combines the frequency adjustment signal from the first correlated signal and combines the frequency adjustment signal with the second correlated signal to reduce a frequency offset in the second correlated signal (see claim 1 rejection below).

Response to Amendment

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawahashi et al. (5,774,494) in view of Dabak et al. (7,039,036) (hereinafter, Sawahashi and Dabak respectively).

6. As per claim 1, Sawahashi teaches, 'an apparatus for performing a correlation with respect to a received signal, the apparatus comprising: (figure 2, elements 17, 48 & 49) a first correlation arrangement that correlates the received signal to produce a first correlated signal (figure 2, element 17 (correlation detection), S_{3I} & S_{3Q}, col.5, lines 8-14); second correlation arrangement that correlates the received signal to produce a second correlated signal (figure 2, elements 48, 49 (correlation detection), S_{7I}, S_{7Q}, S_{8I} & S_{8Q}, col.5, lines 63-67, col.6, lines 1-7); and logic that derives a frequency adjustment signal (figure 2, elements 25, 58, 59) from the first correlated signal (figure 2, elements S_{3I} & S_{3Q}) and combines the frequency adjustment signal with the second correlated signal (figure 2, elements 25, S_{3I}, S_{3Q}, S_{4I} & S_{4Q} , col.5, lines 8-21) to reduce a frequency offset in the second correlated signal (figure 2, elements S_{5I} & S_{5Q}, col.6, lines 50-59) (it should be noted that the frequency error corrected signals S_{5I} & S_{5Q} reduces the

frequency error (claimed frequency offset) in the S_{4I} and S_{4Q} which includes frequency error in the correlated signals outputted from circuits 48 & 49 (figure 2) (claimed second correlated signal) since frequency drifted signal from circuit 58 (figure 2) has the input signals from correlation detectors 48 & 49 (claimed second correlated signal) and thus reads on claim limitations 'reduce a frequency offset in the second correlated signal'.

Sawahashi does not teach primary and secondary synchronization codes in the received signal in order to produce correlated signal.

Dabak teaches primary and secondary synchronization codes in the received signal and produce correlated signals (figures 1, 8A, 8B, 9A & 9B, col.1, lines 66-67, col.2, lines 1-26, col.8, lines 6-19 & 44-51) (it should be noted that Dabak teaches Golay and Hadamard sequences with respect to primary synchronization code and secondary synchronization codes (figures 9A-C, col.8, lines 11-24 & 44-51) which reads on claim limitations in the light of Specification as well (Specification, page 4, lines 10-22).

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to incorporate the Golay and Hadamard sequences of Dabak into the received signal of Sawahashi in order to detect the data correctly in a low signal to noise environment as taught by Dabak (col.8, lines 21-24 & 52-55) thus enhance system reliability.

7. As per claims 2 & 11, Sawahashi teaches a frequency drift correction portion 25 (figure 2) (claimed 'frequency adjustment block') that performs complex multiplication between the despread signals S3I and S3Q (figure 2, col.6, lines 53-59) and produce

frequency corrected signals S5I and S5Q (claimed 'frequency adjustment signals' (figure 2, col.5, lines 18-21, col.6, lines 53-59).

8. Claims 3 & 12 are rejected under the same rationale as mentioned in the rejections of claims 1 and 2 above.

9. As per claims 4 & 5, Sawahashi teaches first correlation arrangement (figure 2 element 17) and second correlation arrangement (figure 2, elements 48 & 49) (claim 1 rejection above) but fails to disclose primary and secondary synchronization code correlators.

Dabak teaches primary synchronization code and produces correlated signals (claimed primary synchronization code correlators) (figure 9B, col.1, lines 66-67, col.8, lines 44-48) and secondary synchronization code and produces correlated signals (figure 9A & 9B, col.8, lines 11-19 & 44-49).

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to incorporate the Golay and Hadamard sequences (primary and secondary synchronization codes) of Dabak into the received signal of Sawahashi in order to detect the data correctly in a low signal to noise environment as taught by Dabak (col.8, lines 21-24 & 52-55) thus enhance system reliability.

10. Claims 13 & 14 are rejected under the same rational as described in claims 4 & 5 rejections above.

11. As per claims 6 & 7, Sawahashi teaches all the limitations in the previous claim on which claims 6 & 7 depend but fails to disclose primary and secondary channel.

Dabak teaches data signals over channels by assigning each signal a unique code (primary and secondary codes) (col.1, lines 26-31 & 66-67, col.2, lines 1-5) which reads on claim limitations 'primary synchronization code corresponds to an a sequence of a primary SCH channel' & 'secondary synchronization code corresponds to a b sequence of a secondary SCH channel'.

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to incorporate the Golay and Hadamard sequences (primary and secondary synchronization codes) of Dabak into the received signal of Sawahashi in order to detect the data correctly in a low signal to noise environment as taught by Dabak (col.8, lines 21-24 & 52-55) thus enhance system reliability.

12. As per claim 8, Sawahashi teaches, 'a portion of a code division multiple access receiver' (col.1, lines 26 & 66-67. col.2, line 1).

13. As per claim 9, Sawahashi teaches all the limitations in the previous claim on which claim 9 depends but fails to disclose WCDMA racier.

Dabak teaches WCDMA receiver (col.1, lines 66-67, col.2, line 1) which reads on claim limitations 'a portion of a receiver that complies with the Universal Mobile Telecommunications System ("UMTS") Wideband Code Division Multiple Access ("WCDMA") standard' since WCDMA is the radio technology used in UMTS and therefore, often the terms "UMTS" and "WCDMA" are used interchangeably.

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to incorporate the use the WCDMA technology of Dabak into Sawahashi's

circuitry in order to provide coherent communications systems as taught by Dabak (col.1, lines 42-49).

14. As per claim 10, in addition to aforementioned rejection of claim 1, Sawahashi teaches, 'an analog-to-digital converter that receives a CDMA signal and converts the CDMA signal into a digital signal' (figure 1, elements 15 & 16, figure 2, elements 15 & 16, col.1, lines 7-13, col.4, lines 56-58), a matched filter that filters the digital signal to produce a filtered digital signal (figure 1, element 17), delay line that receives the filtered digital signal and produces a delayed filtered digital signal (figure 1, element 21), a cell search block (figure 2, elements 17, 48, 49, 58 & 25 since the mentioned elements perform the same function (see claim 1 rejection above) and are equivalent to the circuitry includes in a cell search block which is recited in claim 10 of the instant Application). Although Sawahashi teaches delay detector (figure 1, element 21) but does not teach tapped delay line explicitly.

Dabak teaches a tapped delay line (figure 2, elements 250, 284, figure 10B, col. 9, lines 18-19).

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to replace the Sawahashi delay detector by Dabak tapped delay line in order to achieve desired functions and to compensate for timing skews, such as those due to filters (inherent property of tap delay) thus enhance system performance.

15. Claim 15 is rejected under the same rationale as mentioned in the rejection of claim 1 above.

16. Claims 16 & 17 are rejected under the same rationale as mentioned in the rejections of claims 6 & 7 above.

17. As per claim 18, Sawahashi teaches, 'determining the complex conjugate of an imaginary portion of the first correlated signal' (figure 2, elements S_{3I}, S_{3Q}, col.5, lines 17-18).

18. As per claim 19, Sawahashi teaches multiplying the first correlated signal to derive the frequency adjustment factor (figure 2, elements S_{3I}, S_{3Q}, S_{4I}, S_{4Q}) (it should be noted that the correlated signal S_{3I} and S_{3Q} are multiplied by S_{4I} and S_{4Q} in order to derive the frequency drift correction portion 25 and reads on claim limitations. Sawahashi does not teach primary synchronization code.

Dabak teaches produces correlated values by using the primary synchronization code (col.8, lines 55-63) and reads on claim limitations of correlating signal with primary synchronization code.

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to incorporate the Golay and Hadamard sequences (primary and secondary synchronization codes) of Dabak into the received signal of Sawahashi in order to detect the data correctly in a low signal to noise environment as taught by Dabak (col.8, lines 21-24 & 52-55) thus enhance system reliability.

19. As per claim 20, Sawahashi teaches, 'determining the complex conjugate of an imaginary portion of the first correlated signal (figure 2, elements S_{3I}, S_{3Q}, col.5, lines 17-18) to form an imaginary portion of the frequency adjustment factor' (figure 2, elements S_{5I}, S_{5Q} , col.5, lines 17-21).

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Sigurdsson et al. (7,315,600) teaches asynchronous FIFO apparatus and method for passing data between a first clock domain and a second clock domain and a second clock domain of data processing apparatus.
- Sigurdsson et al. (2005/0220239) teaches asynchronous FIFO apparatus and method for passing data between a first clock domain and a second clock domain and a second clock domain of data processing apparatus.

Contact Information

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Naheed Ejaz whose telephone number is 571-272-5947. The examiner can normally be reached on Monday - Friday 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Naheed Ejaz
Examiner
Art Unit 2611

1/30/2008

NE

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SUPERVISORY PATENT EXAMINER